Independent Schools Examinations Board

COMMON ENTRANCE EXAMINATION AT 13+

SCIENCE

BIOLOGY

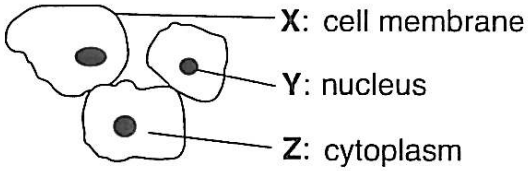
MARK SCHEME

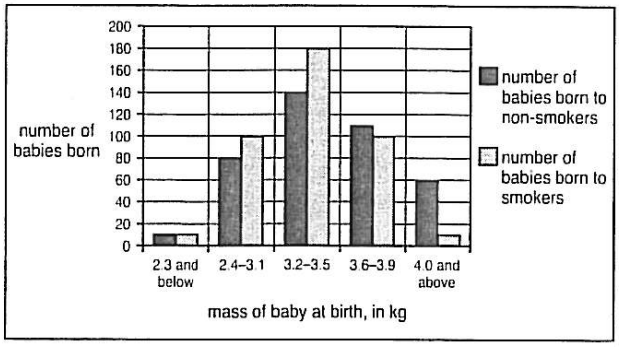
This is a suggested, not a prescriptive, mark scheme.

Monday 7 June 2010

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Q.	Answer	Mark	Additional Guidance
1. (a)	nucleus	10	
(b)	fish		
(c)	carbon dixode and water		
(d)	chlorophyll		
(e)	has fur		
(f)	primary consumers		
(g)	blood		
(h)	oviduct		
(i)	scurvy		
(j)	muscles		
2. (a)	 **X**: cell membrane **Y**: nucleus **Z**: cytoplasm	3	
(b)	peel off a small, thin layer of onion (using forceps) place the onion skin on (microscope) slide add a drop of water/stain (e.g. iodine) lower a cover slip onto the onion skin examine slide using microscope	3	any three ideas
(c)	cell wall/vacuole/chloroplast	1	accept starch grain
(d)	starch orange/brown blue/black	3	
3. (a)	**A**: placenta **B**: umbilical cord **C**: vagina **D**: uterus (wall)	4	

Q.	Answer	Mark	Additional Guidance
(b) (i)	it carries substances from the mother to the fetus	1	accept removes waste products allow follow on error (i.e. correct function for incorrect label in first part of question)
(ii)	oxygen/glucose/water/nutrients/food	1	accept other appropriate answers
(c)		3	3 marks for all bars drawn correctly 2 marks if one mistake 1 mark if two mistakes
(d)	170 non-smokers 110 smokers	2	
(e)	decreases birth mass/slows growth	1	
4. (a)	microscopic algae pond weed	2	
(b)	photosynthesis	1	
(c)	respiration	1	
(d) (i)	it will decrease	1	
(ii)	it will increase	1	
(iii)	it will decrease	1	
5. (a)	<table><tr><td>quadrat</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>number of daisy plants</td><td>4</td><td>3</td><td>2</td><td>5</td><td>6</td><td>4</td></tr></table>	2	2 marks for five correct 1 mark for three correct 0 marks for two or fewer correct
(b)	$\frac{4+3+2+5+6+4}{6}$ $= 4$	2	1 mark for working, 1 mark for correct answer allow both marks if error made in (a) but working and calculation correct

Q.	Answer	Mark	Additional Guidance
(c)	4 × 1,000 = 4,000 daisies	2	allow consequential error, from above
(d)	rainfall/water availability mineral content of soil light intensity/amount of shading temperature carbon dioxide concentration herbivores	3	any three suitable suggestions
6. (a)	has fur/hair/suckles young with milk/warm-blooded	1	any one of these
(b)	lays eggs/beak/bill/poisonous barb	1	any other suitable answers
(c)	webbed feet nostrils which can close tail for swimming thick fur	3	any three suitable suggestions
(d)	detecting/catching prey/finding mates/detecting predators	2	any two suitable suggestions
(e)	thick fur insulates slows heat loss fat store in tail used as energy store *or* to generate heat to keep warm	2	
(f)	*any suitable reptile* scales lay eggs on land vertebrates ectotherms/cold-blooded	3	any two suitable features
Total		60	